

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently amended) A method for pacing a heart to maintain or restore consistent ventricular pacing, the method comprising:

providing a post ventricular atrial refractory period (PVARP) associated with a pacing timing sequence) and a plurality of atrioventricular delays including a sensed atrioventricular delay (SAV);

delivering pacing therapy to left and right ventricles using the pacing timing sequence;

detecting disrupted ventricular pacing during delivery of the pacing timing sequencetherapy;

responsive to detecting disrupted ventricular pacing, implementing a modified ~~modifying the~~ pacing timing sequence to restore ventricular pacing, the modified pacing timing sequence including a decreased PVARP;

scheduling pacing to the ventricles using the SAV relative to a non-refractory atrial event~~modified pacing timing sequence;~~ and

if a maximum tracking rate interval has not expired before the scheduled pacing to the ventricles, delaying pacing to the ventricles until expiration of the maximum tracking rate interval~~avoiding pacemaker mediated tachycardia while pacing the ventricles using the modified pacing timing sequence.~~

2. (Previously presented) The method of claim 1, wherein detecting disrupted ventricular pacing comprises detecting disrupted ventricular pacing caused a premature ventricular contraction.

3. (Withdrawn) The method of claim 1, detecting disrupted ventricular pacing comprises detecting disrupted ventricular pacing caused by a transient increase in heart rate above a maximum tracking rate.

4. (Withdrawn) The method of claim 1, wherein detecting disrupted ventricular pacing comprises detecting one intrinsic atrial depolarization occurring within the PVARP followed by an intrinsic ventricular depolarization.

5. (Previously presented) The method of claim 1, wherein detecting disrupted ventricular pacing comprises detecting an intrinsic ventricular depolarization.

6. (Currently amended) The method of claim 1, wherein modifying the pacing timing sequence comprises:

adjusting decreasing the PVARP for at least one cardiac cycle; and
restoring the PVARP to a previous value after the at least one cardiac cycle.

7 -10. (Canceled)

11. (Previously presented) The method of claim 1, wherein pacing the ventricles using the modified pacing timing sequence comprises restoring ventricular pacing following a premature ventricular contraction.

12. (Previously presented) The method of claim 1, wherein pacing the ventricles using the modified pacing timing sequence comprises restoring ventricular pacing as an intrinsic atrial rate decreases below a maximum tracking rate.

13. (Canceled)

14. (Withdrawn) The method of claim 1, wherein pacing the ventricles using the modified pacing timing sequence comprises avoiding pacing hysteresis as an intrinsic atrial rate decreases below a maximum tracking rate.

15. (Withdrawn) The method of claim 1, wherein pacing the ventricles using the modified pacing timing sequence comprises pacing below an upper rate limit.

16. (Withdrawn) The method of claim 1, wherein pacing the ventricles using the modified pacing timing sequence comprises implementing a ventricular tracking timing sequence.

17. (Previously presented) The method of claim 1, further comprising:
detecting an intrinsic ventricular depolarization; and
interrupting pacing the ventricles using the modified pacing timing sequence if the intrinsic ventricular depolarization is detected.

18. -20(Canceled)

21. (Currently amended) A cardiac rhythm management system, comprising:
a controller configured to provide a plurality of atrioventricular delays including a sensed atrioventricular delay (SAV), the controller further configured to implement a pacing timing sequence including a post ventricular atrial refractory period (PVARP), control delivery of a pacing therapy to left and right ventricles using the pacing timing sequence, analyze cardiac signals to detect disrupted ventricular pacing and, in response to detection of disrupted ventricular pacing, ~~modify the~~ implement a modified pacing timing sequence including a decreased PVARP to restore ventricular pacing, control delivery of pacing to the ventricles using the modified pacing timing sequence, after sensing a non-refractory atrial event, schedule pacing to the ventricles using the SAV relative to the non-refractory atrial event, and, if a maximum tracking rate interval has not expired before the scheduled pacing to the ventricles, delaying pacing to the ventricles until expiration of the maximum tracking

~~rate interval and avoid pacemaker-mediated tachycardia while the ventricles are paced using the modified pacing timing sequence.~~

22. (Withdrawn) The system of claim 21, wherein the controller is configured to detect disrupted ventricular pacing if one atrial event occurs within the PVARP followed by an intrinsic ventricular depolarization.

23. (Withdrawn) The system of claim 21, wherein the controller is configured to detect disrupted ventricular pacing if two or more atrial events occur respectively within two or more successive PVARPs, each atrial event followed by an intrinsic ventricular depolarization.

24. (Previously presented) The system of claim 21, wherein the controller is configured to detect disrupted ventricular pacing if an intrinsic ventricular depolarization is detected.

25. (Previously presented) The system of claim 21, wherein the controller is configured to detect disrupted ventricular pacing caused by a premature ventricular contraction.

26. (Currently amended) The system of claim 21, wherein the controller is configured to modify the pacing timing sequence by adjusting decreasing the PVARP for at least one cardiac cycle and to restore the PVARP to a previous value after the at least one cardiac cycle.

27-28. (Canceled)

29. (Withdrawn) The system of claim 21, wherein the modified pacing timing sequence is configured to avoid pacing hysteresis as an intrinsic atrial rate decreases below a maximum tracking rate.

30. (Previously presented) The system of claim 21, wherein the modified pacing timing sequence is configured to restore ventricular pacing following a premature ventricular contraction.
31. (Previously presented) The system of claim 21, wherein the modified pacing timing sequence is configured to restore ventricular pacing following a transient increase in heart rate above a maximum tracking rate.
32. (Previously presented) The system of claim 21, wherein the modified pacing timing sequence is configured to restore ventricular pacing as an intrinsic atrial rate decreases below a maximum tracking rate.
33. (Withdrawn) The system of claim 21, wherein the modified pacing timing sequence is configured to pace at a rate below an upper rate limit.
34. (Withdrawn) The system of claim 21, wherein the modified pacing timing sequence comprises a ventricular tracking pacing protocol.
35. (Canceled)
36. (Currently amended) A cardiac pacing system, comprising:
- means for providing a post ventricular atrial refractory period (PVARP) and a sensed atrioventricular delay (SAV) associated with a pacing timing sequence;
 - means for delivering ventricular pacing therapy to left and right ventricles using the pacing timing sequence;
 - means for detecting disrupted ventricular pacing;
 - means for modifying the pacing timing sequence including decreasing PVARP to restore ventricular pacing in response to detection of disrupted ventricular pacing;
 - means for pacing the ventricles using the modified pacing timing sequence; and

means for sensing a non-refractory atrial event and scheduling pacing to the ventricles using the SAV relative to the non-refractory atrial event~~modified pacing timing sequence~~; and

means for delaying pacing to the ventricles until expiration of the maximum tracking rate interval if a maximum tracking rate interval has not expired before the scheduled pacing to the ventricles~~avoiding pacemaker mediated tachycardia while pacing the ventricles using the modified pacing timing sequence~~~~avoiding pacemaker mediated tachycardia while pacing the ventricles using the modified pacing timing sequence.~~

37. (Withdrawn) The system of claim 36, wherein the means for detecting disrupted ventricular pacing comprises means for detecting one atrial event occurring within the PVARP followed by an intrinsic ventricular depolarization.

38 – 42. (Canceled)

43. (Original) The system of claim 36, further comprising means for interrupting the modified pacing sequence if an intrinsic ventricular depolarization is detected during implementation of the modified pacing timing sequence.

44. (Canceled)